REMARKS

In an Office Action dated 03 August 2004, the Examiner rejected claims 1 – 10 under 35 U.S.C. 102(b) as being anticipated by Applicant's prior art system and United States Patent No. 5,864,672 issued to Bodeep et al. Applicant has amended claims 1 – 10 and has provided the following remarks in support of patentability of claims 1 – 10.

The Examiner rejected claims 1 – 10 under 35 U.S.C. 102(b) as being anticipated by Applicant's prior art system and United States Patent No. 5,864,672 issued to Bodeep et al. Applicant has reviewed the cited references and has amended claims 1 – 10 to overcome these cited references and to more precisely define Applicant's invention. In particular, the prior art described in Applicant's specification is characterized as follows:

> In the system as shown on Figure 1, the data is in the form of digital base band IP transmissions from the source of the data (IP Backbone network 101 and the Public Switched Telephone Network 102) to the cable modem termination system 105, 106, where this data is converted to DOCSIS IP data for transmission to the end user locations. In the architecture of Figure 1, the cable modem termination system 105, 106 is located in the primary hubs 121-125, while in the architecture of Figure 2, the cable modem termination system 107, 108 is located in the passive fiber nodes 141-149. In the system of Figure 1, the communication capability of the upstream DOCSIS channels (from the passive fiber nodes 141-149 to the cable modem termination system 105, 106) represents a communication bottleneck. The architecture of Figure 2 solves the upstream DOCSIS channel communication bottleneck problem of the broadband cable network of Figure 1, but at the cost of multiplying the number of cable modem termination systems 107, 108 required to provision the broadband cable network.

Furthermore, the Bodeep et al. patent discloses the use of a converter apparatus (Mini Fiber Node MFN) in a communication network (e.g., a coax network), including a signal distribution unit (e.g., fiber node FN) for transmitting frequency-division multiplexed communication signals downstream over a coax cable to a node apparatus (amplifier) and via an access path to a plurality of end unit apparatuses connected thereto. The converter connects to the access path and may either receive downstream FDM signals directly from the central office over an optical communication path and send FDM signals to at least one end unit apparatus over the access path, or the converter apparatus may receive upstream FDM signals from the end unit apparatus over the access path and transmit the upstream

FDM signals to the central office over the optical path. When the second communication path is bidirectional, it may carry both downstream and upstream FDM signals.

In contrast, Applicant's system is described as follows:

> The upstream broadband cable termination segments 301, 302 and 401, 402 of the broadband cable modem termination system of Figures 3 and 4, respectively, are located at a different layer of the broadband cable network from the downstream broadband cable modem termination segments 303, 304 and 403, 404 of the broadband cable modem termination system.
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> By splitting the broadband cable modem termination system functions into separable and independently operable upstream and downstream functions, network deployment is optimized for a number of reasons. The downstream and upstream functions scale independently so the system can be managed to selectively add capacity where needed in the direction needed independent of the capacity in the reverse direction.

Thus, the broadband cable modem termination has two segments: downstream and upstream functions, which in Applicant's system are separated into individual components and located at different levels of the network to optimize operation of the network. This structure is neither shown nor suggested by the cited references, which both require the use of a single cable modem termination which incorporates both segments: downstream and upstream functions in a single device. Applicant's novel structure is now more clearly recited in claims 1 – 10, with claim 1 being an example of this amended structure:

> A broadband cable modem termination system for managing data transmissions through a broadband network that interconnects a plurality of end user locations and a head-end via a cable modem which has an upstream component for multi-point end user to single point head-end upstream signaling and a downstream component for single point head-end to multi-point end user downstream signaling, said broadband network comprising a hierarchical network having at least two levels, said broadband cable modem termination system comprising:
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> downstream broadband cable modem component data transmission means, located at a first level of said hierarchical network, for transmitting data in a downstream direction from a source of program material at said head-end to selected ones of said plurality of end user locations; and
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> upstream broadband cable modem component data transmission means, located at a second level of said hierarchical network, for transmitting control data received from at least one of said plurality of end user locations in an upstream direction to said head-end, wherein said second level is located downstream of said first level in said hierarchical network.

Therefore, Applicant believes that claims 1 – 10 are allowable under 35 U.S.C. 102(b) over the cited references.

Summary

Applicant respectfully requests a Notice of Allowance of claims 1 – 10 in this application in light of the amendments and remarks set forth herein. The undersigned attorney requests Examiner Raman to telephone if a conversation could expedite the prosecution of this application. Applicant authorizes the Commissioner to charge any required payment of fees to Deposit Account No. 50-1848.

Respectfully submitted,
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Date: 2 NOVEMBER 2004 By: _____

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